

WHAT IS CLAIMED IS:

1. An interactive TV device, comprising:

an input, the input being configured to accept a plurality of input streams;

an output, the output being configured to selectively output a plurality of output

5 streams;

a first digital bus connected between the input and output, the first digital bus being uninterrupted between the input and the output;

an analog bus connected between the input and the output, the analog bus including a video signal decoder coupled to the input and a video signal encoder coupled to the output,
10 and

a graphics processing assembly coupled to the first digital bus and to the analog bus.

2. The device of Claim 1, wherein the input is configured to accept an input stream selected from a group including an analog video source, a digital video source, an IP connection, a video stream from a data carrier, a video stream from a video camera, an IR
15 connection, a wireless connection, a Universal Serial Bus-compatible port and the output of the interactive TV device.

3. The device of Claim 1, wherein the output is configured to selectively output a video stream to at least one of a plurality of TV outputs, a disk recorder, to the input of the device, to a network, to a Universal Serial Bus-compatible port, to a SCART-compatible port
20 and to a computer display.

4. The device of Claim 1, wherein the digital bus is configured as a Digital Video Bus (DVB).

5. The device of Claim 1, wherein the input further comprises an input multiplexer coupled to the input, the input multiplexer being configured to selectively route at least one of the plurality of input video streams onto at least one of the digital bus and the analog bus.

6. The device of Claim 1, wherein the output further comprises an output multiplexer coupled to the output, the output multiplexer being configured to selectively route at least one video signal from at least one of the digital bus and the analog bus to the output.

7. The device of claim 1, wherein the video signal encoder includes a PAL or NTSC or SECAM decoder and wherein the video signal decoder includes an HDTV or PAL or NTSC or SECAM decoder.

8. The device of Claim 1, further comprising memory and disk storage, the memory and the disk storage being accessible via a command bus that is coupled to the input, the output and to the graphics processing assembly.

9. The device of Claim 8, wherein the disk storage includes at least one of a magnetic hard disk and an optical disk reader and recorder.

10. The device of Claim 1, further including a watchdog processor, the watchdog processor being coupled to the analog bus and the command bus and being configured to monitor a state of the device and to monitor and regulate traffic on the analog and command buses.

11. The device of Claim 1, wherein the graphics processing assembly includes first graphics engine and a second graphics engine.

12. The device of Claim 11, wherein the first graphics engine includes a hardware video encoder and a hardware video decoder, both the video encoder and decoder being
5 coupled to the digital bus and to the analog bus.

13. The device of Claim 12, wherein the hardware video encoder and the hardware video decoder conform to a Motion Pictures Expert Group (MPEG) standard.

14. The device of Claim 12, further comprising a Central Processing Unit (CPU) coupled between an output of the video encoder and an input of the video decoder, the CPU
10 also being coupled to the digital bus.

15. The device of Claim 12, wherein the second graphics engine includes a graphics processor coupled to the CPU.

16. The device of Claim 12, wherein the graphics processing assembly further includes a video controller coupled to the CPU and the output.

17. The device of Claim 1, further comprising an integrated video camera.

18. The device of Claim 17, wherein the video camera is configured to automatically track a person.

19. The device of Claim 17, further comprising an auto-tracking analog controller configured to control the integrated video camera using analog signals from a videocomposite
20 signal generated by the integrated video camera.

20. The device of Claim 18, wherein the auto-tracking analog controller includes:

means for separating scan lines signals and frames signals from the videocomposite signal;

a horizontal displacement controller configured to generate a move left signal and a move right signal from the scan lines signals and the videocomposite signal to control right and left movement of the integrated video camera, and

a vertical displacement controller configured to generate a move up signal and a move down signal from the frames signals and the videocomposite signal to control up and down movement of the integrated video camera.

21. The device of Claim 20, wherein the horizontal displacement controller is configured to carry out a comparison of a current horizontal position of the person as determined from the scan lines signal and the videocomposite signal with a previous horizontal position of the person and to selectively output either the move right signal or the move left signal depending upon a result of the comparison.

22. The device of Claim 20, wherein the vertical displacement controller is configured to carry out a comparison of a current vertical position of the person as determined from the frame lines signal and the videocomposite signal with a previous vertical position of the person and to selectively output either the move up signal or the move down signal depending upon a result of the comparison.

23. The device of Claim 17, further comprising a removable cover configured to be fitted over a front face of the interactive TV device to physically obscure a field of view of the camera.

24. The device of Claim 1, further comprising at least one of a smart card reader and a magnetic card reader.

25. The device of Claim 1, wherein the device is further configured to connect to at least one of a keyboard and a pointing device.

5 26. The device of Claim 1, further comprising at least one microphone.

27. The device of Claim 1, wherein the device is configured to retrieve a list of available service and content providers from a remote server over a network, based upon a localization indicium supplied to the remote server.

10 28. The device of Claim 27, wherein the localization indicium is selected from a group including an area code of a region in which the device is located, a geographical coordinate obtained from Global Positioning Satellites and an indication of a present time and time zone.

15 29. The device of Claim 1, wherein the device is configured to treat all incoming video streams as a channel that is accessible to a user in a same manner as a television channel.

30. The device of Claim 1, wherein the device is configured to be connected to a display and wherein the device is configured to display incoming signals either in a full screen format or in a format including up to four independent quarter screen segments on the display.

20 31. The device of Claim 1, wherein the device is configured to be connected to a display defined by four sides, the device being configured to selectively display four pull out

strips, each pull out strip of the four originating from a respective one of the four sides of the display, each pull out strip displaying at least one of icons and channel logos.

32. The device of Claim 31, wherein one of the channel logos includes an image of a user.

5 33. The device of Claim 8, further comprising a removable drawer including a plurality of electronic modules, the removable drawer being configured to electrically couple selected one of the plurality of electronic modules to at least one of the command bus, the analog bus and the digital bus.

10 34. The device of Claim 8, further comprising means for recording incoming analog or digital video streams and storing the recorded video streams on the disk storage.

35. The device of Claim 34, wherein the device is configured to maintain a recording library database that includes a record for each recording created by the interactive TV device.

15 36. The device of Claim 35, wherein the recording library database stores, for each recording, at least one of: a name of the recording, a description of the recording, a location of the recording on the disk storage a date of the recording, a time of the recording, a duration of the recording, a channel from which the recording was made, an identification of a user having made the recording, a type of recording and a password associated with the recording.

20 37. The device of Claim 1, further comprising means for Web browsing.

38. The device of Claim 1, further comprising means for composing and managing email.

39. An interactive television device configured to display four selectively viewable pull out strips on a display, each pull out strip originating from a respective one of the four sides of the display and extending toward an opposite one of the four sides, each pull out strip displaying at least one of icons and channel logos.

40. The device of Claim 39, wherein each of the four pull out strip is configured to be pulled out from one of the four sides of the display upon selection by an input device, each of the four pull out strip further being configured to be out of view when not selected or in use.

41. The device of Claim 39, wherein at least one of the four pull out strips is scrollable.

42. The device of Claim 39, wherein one of the channel logos includes an image of a user, the selection of which invoking a user management general module that is configured to enable the creation, modification and deletion of a user and a user profile.

43. The device of Claim 42, wherein the user profile includes at least one of:

a unique user identification number;

a user logo, the user logo including an image of the user;

an identification of a last channel selected by the user;

a number of channels defined for the user;

a channel table, the channel table including a list of channels assigned to the user;

a personal password of the user;

a default recording quality for recordings made for the user, and

an applications table for the user, the application table defining access rights for the user to the applications loaded onto the interactive TV device and a location of user and application-specific data.

44. The device of Claim 39, wherein the device is further configured to display incoming signals either in a full screen format or in a format including up to four independent quarter screen segments on the display.

45. A system for interactive television, comprising:

at a first location:

a first interactive TV device, the interactive TV device including a first

integrated auto-tracking video camera, and

a first display coupled to the interactive TV device;

at a second location remote from the first location:

one of a standalone auto-tracking video camera and a second interactive TV

device including a second integrated auto-tracking video camera, and

a second display coupled to one of the standalone auto-tracking video camera

and the second interactive TV device, and

a network coupling the first interactive TV device to one of the standalone auto-

tracking video camera and the second interactive TV device.

46. The system of Claim 45, wherein the first and second integrated video cameras and the standalone video camera each derive auto-tracking signals from analog videocomposite signals.

47. A video camera system for videoconferencing applications, comprising:

5 a video camera, including:

a circular base;

an elongated body coupled to the base, and

10 a head supported away from the base by the body, the head including a video camera movable along an X and a Y-axis, motors for moving the video camera along the X and Y-axes and at least one microphone.

48. The video camera system of Claim 47, wherein the base includes a connector for at least one of power, video signals and control signals.

49. The video camera system of Claim 47, wherein the body is removably coupled to the base.

15 50. The video camera system of Claim 47, further comprising at least one ring disposed between the base and the body, each of the at least one rings being configured to carry out a predetermined function.

51. The video camera system of Claim 50, wherein the at least one ring includes a battery to power the video camera.

20 52. The video camera system of Claim 50, wherein the at least one ring includes an electric motor and a controller coupled to the electric motor for rotating the camera along the X-axis.

53. The video camera system of Claim 50, wherein the at least one ring includes wireless communication means.

54. The video camera system of Claim 50, wherein the at least one ring includes means for processing at least one of an analog and a digital video stream.

55. The video camera system of Claim 50, wherein the at least one ring includes a processor configured to run a multipoint videoconferencing application.

56. The video camera system of Claim 47, wherein the body includes an infrared (IR) sensor.

57. The video camera system of Claim 47, wherein the body includes at least one antenna.

58. The video camera system of Claim 47, wherein the video camera is configured to automatically track a person.

59. The video camera system of Claim 47, further comprising an auto-tracking analog controller configured to control the video camera using analog signals derived from a videocomposite signal generated by the video camera.

60. The video camera system of Claim 59, wherein the auto-tracking analog controller includes:

means for separating scan lines signals and frames signals from the videocomposite signal;

a horizontal displacement controller configured to generate a move left signal and a move right signal from the scan lines signals and the videocomposite signal to control right and left movement of the integrated video camera, and

a vertical displacement controller configured to generate a move up signal and a move down signal from the frames signals and the videocomposite signal to control up and down movement of the integrated video camera.

61. The video camera system of Claim 60, wherein the horizontal displacement
5 controller is configured to carry out a comparison of a current horizontal position of the person as determined from the scan lines signal and the videocomposite signal with a previous horizontal position of the person and to selectively output either the move right signal or the move left signal depending upon a result of the comparison.

62. The video camera system of Claim 60, wherein the vertical displacement
10 controller is configured to carry out a comparison of a current vertical position of the person as determined from the frame lines signal and the videocomposite signal with a previous vertical position of the person and to selectively output either the move up signal or the move down signal depending upon a result of the comparison.

63. The video camera system of Claim 47, further comprising signal processing
15 means, the signal processing means including:

an input, the input being configured to accept a plurality of input streams;

an output, the output being configured to selectively output a plurality of output
streams;

a first digital bus connected between the input and output, the first digital bus being
20 uninterrupted between the input and the output;

an analog bus connected between the input and the output, the analog bus including a video signal decoder coupled to the input and a video signal encoder coupled to the output, and

a graphics processing assembly coupled to the first digital bus and to the analog bus.

5 64. The video camera system of Claim 63, wherein the input is configured to accept an input stream selected from a group including the video camera, an analog video source, a digital video source, an IP connection, an IR connection and an output of the video camera.

10 65. The video camera system of Claim 63, wherein the output is configured to selectively output a video stream to at least one of a plurality of TV outputs, a modem, wireless data port, to a San IR connection and to the input of the video camera.

 66. The video camera system of Claim 63, wherein the digital bus is configured as a Digital Video Bus (DVB).

15 67. The video camera system of Claim 63, wherein the input further comprises an input multiplexer coupled to the input, the input multiplexer being configured to selectively route at least one of the plurality of input video streams onto at least one of the digital bus and the analog bus.

20 68. The video camera system of Claim 63, wherein the output further comprises an output multiplexer coupled to the output, the output multiplexer being configured to selectively route at least one video signal from at least one of the digital bus and the analog bus to the output.

69. The video camera system of Claim 63, wherein the video signal encoder includes at least one of a PAL, NTSC and SECAM decoder and wherein the video signal decoder includes at least one of an HDTV, PAL, NTSC and SECAM decoder.

70. The video camera system of Claim 63, further comprising memory and disk storage, the memory and the disk storage being accessible via a command bus that is coupled to the input, the output and to the graphics processing assembly.

71. The video camera system of Claim 70, further including a Main Input/Output (I/O) processor, the main I/O control processor being coupled to the analog bus and the command bus and being configured to monitor a state of the device and to monitor and regulate traffic on the analog and command buses.

72. The video camera system of Claim 63, wherein the graphics processing assembly includes a hardware video encoder and a hardware video decoder, both the video encoder and decoder being coupled to the digital bus and to the analog bus.

73. The video camera of Claim 72, wherein the hardware video encoder and the hardware video decoder conform to a Motion Pictures Expert Group (MPEG) standard.

74. The video camera system of Claim 72, further comprising a Central Processing Unit (CPU) coupled between an output of the video encoder and an input of the video decoder, the CPU also being coupled to the digital bus.

75. The video camera system of Claim 47, further including means for gross targeting of a person.

76. The video camera system of Claim 47, wherein the video camera further includes an infrared receiver for receiving a selected and coded infrared signal and wherein

the system further comprises an electronic tag configured to be worn on a person, the electronic tag including an infrared signal generator configured to generate the selected and coded infrared signal to enable the video camera to grossly target the person.

77. The video camera system of Claim 76, wherein the electronic tag further

5 includes at least one microphone.